AMENDMENTS TO THE CLAIMS:

Claims 1 and 11 have been canceled. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Canceled).

Claim 2 (Previously Presented): A working unit control apparatus of an excavating and loading machine comprising:

a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder;

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever; and

a controller outputting a boom control command value to the boom control valve on the basis

of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector, wherein:

said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

said controller has a load judging portion judging on the basis of a detecting amount input from the excavating state detecting means whether or not the vehicle is under excavation, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of the judgment of said load judging portion, and the automatic excavation control means judges an automatic excavation start when the boom lever is operated and said load judging portion judges that the vehicle is under excavation,

the excavating state detecting means is constituted by a vehicle speed detector detecting a vehicle speed and an engine rotational speed detector detecting an engine rotational speed, and

the load judging portion is structured such as to judge that the vehicle is under excavation when the vehicle speed is equal to or less than a value shown by a predetermined curve relating to the engine rotational speed.

Claim 3 (Previously Presented): A working unit control apparatus of an excavating and loading machine comprising:

a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder;

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever; and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector, wherein:

said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

said controller has a load judging portion judging on the basis of a detecting amount input from the excavating state detecting means whether or not the vehicle is under excavation, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of the judgment of said load judging portion, and the automatic excavation control means judges an automatic excavation start when the boom lever is operated and said load judging portion judges that the vehicle is under excavation,

the excavating state detecting means is constituted by an accelerator pedal operating amount detector detecting an accelerator pedal operating amount and an engine rotational speed detector detecting an engine rotational speed, and

the load judging portion is structured such as to judge that the vehicle is under excavation when the accelerator pedal operating amount is equal to or more than a predetermined operating amount and the engine rotational speed is equal to or less than a predetermined rotational speed.

Claim 4 (Withdrawn): A working unit control apparatus of an excavating and loading machine comprising:

a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder;

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever; and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and

outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector,

wherein said working unit control apparatus is additionally provided with an engine rotational speed detector detecting an engine rotational speed, and

wherein said controller has automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of any one of a manual command and a judgement of a load judging portion judging whether or not the vehicle is under excavation, and said automatic excavation control means outputs a boom control command value which becomes smaller as the engine rotational speed becomes larger at a time of operating the boom to the boom control valve.

Claim 5 (Withdrawn): A working unit control apparatus of an excavating and loading machine comprising:

a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder;

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever; and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector,

wherein said working unit control apparatus is additionally provided with an engine rotational speed detector detecting an engine rotational speed, and

said controller has automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of any one of a manual command and a judgement of a load judging portion judging whether or not the vehicle is under excavation, and said automatic excavation control means outputs a control command value which is based on any one of the engine rotational speed and the boom lever operating amount to the bucket control valve.

Claim 6 (Withdrawn): A working unit control apparatus of an excavating and loading machine as claimed in claim 5, wherein the automatic excavation control means is structured such as to output a bucket control command value corresponding to the boom lever operating amount to the bucket control valve at a time of operating the boom lever.

Claim 7 (Withdrawn): A working unit control apparatus of an excavating and loading machine as claimed in claim 5, wherein the automatic excavation control means is structured such as to output a bucket control command value which becomes smaller as the engine rotational speed becomes larger to the bucket control valve.

Claim 8 (Withdrawn): A working unit control apparatus of an excavating and loading machine comprising:

a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder;

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever; and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector,

wherein said controller has automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of any one of a manual command and a judgement of a load judging portion judging whether or not the vehicle is under excavation, and said automatic excavation control means outputs a bucket control command value to the bucket control valve without relation to an operation or a stop of the boom cylinder.

Claim 9 (Withdrawn): A working unit control apparatus of an excavating and loading machine comprising:

a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder;

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever; and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket

lever operating amount input from the bucket lever operating amount detector,

wherein said working unit control apparatus is additionally provided with a mode selecting button setting a mode for outputting the bucket control command value in a continuous manner or a pulse manner, a mode selecting signal output from the mode selecting button is input to the controller, and

said controller has automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of a manual command and a judgement of a load judging portion judging whether or not the vehicle is under excavation, and said automatic excavation control means is structured such as to switch the output mode on the basis of the mode selecting signal.

Claim 10 (Withdrawn): A working unit control apparatus of an excavating and loading machine as claimed in claim 4, 5, 8 or 9, further comprising a stroke end detector outputting an on signal as a stroke end signal when the bucket cylinder is at a stroke end so as to input the stroke end signal to the controller,

wherein the automatic excavation control means is structured such as to complete the automatic excavation control when the stroke end signal is the on signal.

Claim 11 (Canceled).

Claim 12 (Previously Presented): A working unit control apparatus of an excavating and loading machine comprising:

a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder;

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever; and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector, wherein:

said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

said controller has a load judging portion judging on the basis of a detecting amount input form the excavating state detecting means whether or not the vehicle is under excavation, an operating amount change judging portion judging that the boom lever operating amount changed to

a zero amount from a predetermined operating amount, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of the judgment of said load judging portion and said operating amount change judging portion,

the automatic excavation control means outputs the automatic excavation command value to each of the control valves when said load judging portion judges that the vehicle is under excavation and said operating amount change judging portion judges that the boom lever operating amount changes from a predetermined operating amount to a zero amount,

the excavating state detecting means is constituted by a vehicle speed detector detecting a vehicle speed and an engine rotational speed detector detecting an engine rotational speed, and

the load judging portion is structured such as to judge that the vehicle is under excavation when the vehicle speed is equal to or less than a value shown by a predetermined curve relating to the engine rotational speed.

Claim 13 (Previously Presented): A working unit control apparatus of an excavating and loading machine comprising:

a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder;

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever; and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector, wherein:

said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

said controller has a load judging portion judging on the basis of a detecting amount input from the excavating state detecting means whether or not the vehicle is under excavation, an operating amount change judging portion judging that the boom lever operating amount changed to a zero amount from a predetermined operating amount, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of the judgment of said load judging portion and said operating amount change judging portion,

the automatic excavation control means outputs the automatic excavation command value to each of the control valves when said load judging portion judges that the vehicle is under excavation and said operating amount change judging portion judges that the boom lever operating amount changes from a predetermined operating amount to a zero amount,

the excavating state detecting means is constituted by an accelerator pedal operating amount detector detecting an accelerator pedal operating amount and an engine rotational speed detector

detecting an engine rotational speed, and

the load judging portion is structured such as to judge that the vehicle is under excavation when the accelerator pedal operating amount is equal to or more than a predetermined operating amount and the engine rotational speed is equal to or less than a predetermined rotational speed.